US Army Medical Research and Materiel

Technology Available for Licensing

Method for Production of *Plasmodium* Causing Relapsing Malaria

Features and advantages:

- **Enhances contact between parasitized cells and target reticulocytes**
- **Provides a constant source of infected human reticulocytes**
- **Reduces *in vitro* parasite fragility and allows maturation of schizonts containing merozoites**
- **Nearly replicates normal parasite growth in a *in vitro* culture**

This invention is an improved method for *in vitro* cultivation of *Plasmodium ovale and P. vivax,* two of the four parasites that cause malaria in humans. The invention provides a means for recycling parasites and maintaining long-term cultures of *P. vivax* and *P. ovale*. The parasites are acquired from a nonhuman primate host and then grown in a culture containing enriched reticulocytes obtained from discarded human blood. *P. ovale* must be cultured with blood obtained from persons of African descent who have Duffy antigen negative blood, in contrast to *P. vivax* which must be cultured with blood from persons who have Duffy antigen positive blood.

P. vivax is the predominant malaria species in temperate climates. It also occurs in large areas of the tropics, excluding Africa, where *P. ovale* is predominant. Although *P. vivax* and *P. ovale* infections are seldom fatal, they cause severe, acute illnesses and, unlike *P. falciparum*, result in relapsing episodes of malaria months or years after the original infection. A serious impediment to drug and vaccine development has been the inability to culture [illegible]sites, which preferentially invade human reticulocytes.

Patent Status

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The *in vitro* parasites may be used to evaluate the effect of prospective drugs, to produce parasite antigens for inclusion in vaccines, and to evaluate the effect of [illegible]es raised by vaccines.

Point of Contact

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